REMARKS

Reconsideration of the subject application in view of the preceding amendments and the following remarks is respectfully requested. Prior to these amendments, claims 1-11 and 21-26 were pending in this application. In this response claims 1, 7 and 21 have been amended to more particularly recite what Applicant regards as the invention and claim 22 has been cancelled. Therefore, claims 1-11, 21 and 23-26 remain pending in the application. No new matter has been added by these amendments.

In the Office Action, claim 22 was rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically, according to the Examiner, claim 22 is ambiguously constructed and indeterminate in scope because it purports to claim both an apparatus and method of using the apparatus in a single claim. Although Applicant does not agree with the Examiner's reasons for rejecting claim 22, Applicant has nevertheless cancelled the claim. Thus, Applicant believes that the rejection under 35 USC § 112 has been rendered moot and an action acknowledging the same is respectfully requested.

In the Office Action, claim 21 was rejected by the Examiner under 35 USC § 101 as improperly embracing both product and process. In response thereto, Applicant has amended claim 21 to move the limitations directed to the plug from the body of the claim to the preamble. Applicant submits that this amendment obviates the rejection to claim 21 based on 35 USC § 101 and an action acknowledging the same is respectfully requested.

In the Office Action, claims 1, 2, 7-10, 21-24 and 26 were rejected under 35 USC § 102(b) as being anticipated by U.S. Patent Application Publication No. 2002/0046834 to

Rayssiguier et al. ("Rayssiguier"). Rayssiguier is directed to a hydraulic actuator adapted for use in downhole well applications that enables control of several hydraulic devices from a single control line.

In contrast, amended claim 1 is directed to a plug for controlling fluid flow in a well bore at a packer or other sealing element. The plug includes a substantially cylindrical body adapted for connection to the packer or sealing element. The body has a bore through a portion thereof and one or more radial ports for passage of fluid from the bore to an outer surface of the body. An actuating member is moveable relative to the body so as to cover each of the one or more radial ports in a first position and uncover each of the one or more radial ports in a second position wherein movement of the actuating member is controlled by an actuating mechanism. The actuating mechanism is operable under pressure in the well bore to set the plug in a first natural state wherein the actuating member is in the first position for a pressure under a predetermined pressure range; a second closed state wherein the actuating member is locked in the first position regardless of the pressure; and a third open state wherein the actuating member is moved to the second position on increasing the pressure to the predetermined pressure range and holding the pressure in the range for a predetermined time.

Rayssiguier does not disclose a plug for controlling fluid flow in a wellbore. As noted above, Rayssiguier is directed to a mechanism for actuating downhole well tools that require pressurized hydraulic fluid to operate. Further, the present invention requires that the actuating mechanism be operable under pressure in the wellbore to set the plug, see claim 1. The prior art device is operated by hydraulic fluid pressure in a main control line and is not operated by fluid in the well bore.

The present invention, at Claim 1, further requires an actuating member which covers each of the ports in a first position i.e. closed state and uncovers each of the ports in a second position i.e. open state. The hydraulic actuator of the Rayssiguier provides an inlet port for the hydraulic fluid from a main control line at 14, leading to outlet ports 26a, 26b, see paragraph [0048]. A supply alternator 36, controls the distribution of the hydraulic fluid pressure from the inlet port 14 to the appropriate outlet port 26a and 26b.

Thus, the mechanism of Rayssiguier cannot operate with the outlet ports 26a, 26b both closed or both open as the system is designed to distribute the hydraulic fluid through one of the ports at a time. See figures 4-13 and paragraphs [0071]-[0079] and [0144] of Rayssiguier which disclose that the fluid must exit from only one of the outlet ports 26a, 26b, which is in direct contrast to the radial ports in the present invention as an actuating member does not cover any of the ports in a first position and uncovers all of the ports in a second position.

If we are to consider the operation of a single port, say 26a, then this still cannot achieve the operation of the present invention. At paragraph [0071], Rayssiguier states that figure 4 illustrates the mechanism in a first position under no pressure. In this arrangement the port 26a is closed. With initial pressure applied the mechanism moves to that which is illustrated in figure 5 and described at paragraph [0078], wherein the port 26a remains closed.

Elevating the pressure as described at paragraph [0083] of Rayssiguier, and shown in figure 6 still keeps ports 26a closed. With the elevated pressure bled off, figure 7, the port 26a still remains closed. Then with the pressure bled to a pressure below the initial pressure, paragraph [0087] and figure 8, the port 26a still remains firmly closed.

Subsequent bleeding off of pressure to a release pressure and then below the release pressure causes the port 26a to open, while the opposite port closes. See paragraph [0089] and figure 9. The plug of the present invention is in a first natural state with the actuating member in a first position i.e. each of the radial ports are closed or covered, when pressure is under predetermined pressure range. If we consider that the predetermined pressure range is around the release pressure of the prior art then figures 4 and 5 would illustrate the first natural state.

The present invention then requires a second closed state, where the actuating member is locked in the first position regardless of the pressure. In Rayssiguier, the pressure is elevated in figure 6 and then bled off in figures 7, 8 and 9. However, in bleeding off the pressure at figure 9 the port 26a does not remain in the closed state as it is opened when the pressure is bled off under the release pressure. (see figure 9, paragraph 89). Thus, there is no second closed state when the actuating member is locked in a first position regardless of the pressure.

The present invention then requires a third open state when the actuating member is moved to a second position i.e. opening the port on increasing the pressure to the predetermined pressure range and holding the pressure in the range for a predetermined time. This is contrary to the teaching of Rayssiguier, as the prior art requires us to bleed off pressure to pull the pressure under a predetermined range i.e. the release pressure, figure 9, paragraph [0089]. Thus, it is pressure decrease which opens the port 26a to obtain the third open state and not an increase of pressure as required in the present invention.

Figures 10, 11, 12 and 13 of Rayssiguier do not further the teaching as these show the steps to take the port from the open position back to the closed position. Even if we were to consider that the second port 26b could be used to move from a closed position to an open

position as illustrated from figures 9 to 13, it is seen that at figure 13, paragraph [0102], this again requires that the pressure is bled off to obtain movement to an open state. Thus, in the prior art device there is no combination which obtains a third open state where the actuating member is moved to the second position on increasing the pressure to the predetermined pressure and holding the pressure in the range for a predetermined time. In each of the embodiments of Rayssiguier require that the pressure is decreased to obtain this third open state.

It is therefore respectfully submitted that Claim 1, and each of the claims depending therefrom are not anticipated by Rayssiguier and an action acknowledging the same is respectfully requested.

Concerning the Examiner's rejection to Claim 21 as being anticipated by Rayssiguier, Applicants provide the following comments. Claim 21 is directed to a method of controlling fluid flow in a well bore through a plug operated by an actuating mechanism. The claimed method includes the steps of increasing pressure from a surface of the well bore to within a predetermined range; and keeping the pressure within the predetermined range over sufficient time to cause the actuating mechanism to move and open the plug.

As noted above, Rayssiguier is directed to a mechanism for actuating downhole well tools that require pressurized hydraulic fluid to operate. Rayssiguier does not teach, suggest or discloses a method for controlling fluid flow in a well bore through a plug. Further, Rayssiguier does not disclose increasing the pressure from a surface of the well bore to within a predetermined range and keeping the pressure with the predetermined range over sufficient time to cause the actuating mechanism to move and open the plug.

The hydraulic actuator of the Rayssiguier provides an inlet port for the hydraulic fluid from a main control line at 14, leading to outlet ports 26a, 26b, see paragraph [0048]. A supply alternator 36, controls the distribution of the hydraulic fluid pressure from the inlet port 14 to the appropriate outlet port 26a and 26b.

Thus, the mechanism of Rayssiguier cannot operate with the outlet ports 26a, 26b both closed or both open as the system is designed to distribute the hydraulic fluid through one of the ports at a time. See figures 4-13 and paragraphs [0071]-[0079] and [0144] of Rayssiguier which disclose that the fluid must exit from only one of the outlet ports 26a, 26b, which is in direct contrast to the radial ports in the present invention as an actuating member does not cover any of the ports in a first position and uncovers all of the ports in a second position.

Therefore, Applicant respectfully submits that claim 21 and each of the claims depending therefrom, namely claims 23-26, are not anticipated by Rayssiguier and an action acknowledging the same is respectfully requested.

In the Office Action, the Examiner rejected claims 11 and 25, under 35 USC § 103(a) as being rendered obvious by Rayssiguier. Concerning claim 25, the Examiner stated that Rayssiguier discloses all of the features of claims 11 and 25 with the exception of having a range of pressure of 1200 to 1800 psi or a pressure testing plug. The Examiner took Official Notice that hydraulic operating pressure from 1200 to 1800 psi are common in the art and stated that it would have been obvious to a person of ordinary skill in the art at the time of the invention to have the apparatus of Rayssiguier operable by hydraulic pressires from 11200 to 1800 psi should the wellbore conditions require it. Additionally, the Examiner noted that it would have been

obvious to a person of ordinary skill in the art at the time of the invention to test the apparatus of Rayssiguier as any product or process should be test before use.

The applicants have distinguished the present invention as recited in each of independent claims 1 and 21 from Rayssiguier. Therefore, since the previously noted deficiencies of Rayssiguier with respect to these claims are not cured by the Official Notice taken by the Examiner, it is believed that the rejections of dependant claims 11 and 25 as being obvious have been obviated.

However, Applicant notes that a range of 1200 to 1800 psi is selected as representative of the pressure of production fluid in a well bore, it would not be the pressure in the hydraulic control line as taught in Rayssiguier. Thus, by operating the plug under pressure in the production tubing of a well bore, Applicant does not require separate hydraulic lines to the surface of the well. Such hydraulic lines are difficult to install and complex in operation. Applicant advantageously uses the fluid present in the well already to operate the plug and the actuating mechanism.

Still further, the Examiner's argument that claim 25 is rendered obvious as he considers that the step of pressure testing is obvious as most products and processes are normally tested before use. The method of the present invention requires that the plug is located in the well bore, thus, the pressure test is performed in the well bore when the plug is in use. It is not a pressure test of the plug, but the well bore below the packer or sealing element, in use. In this way a pressure test in the well bore can be achieved using a plug of the present invention.

Applicant wishes to thank the Examiner for indicating that claims 3-6 are allowable.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be

filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105, under Order No. 65584US(71678).

If it is believed that an interview would advance prosecution, the Examiner is invited to call Applicant's representative at the number below.

Respectfully submitted,

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